

## NOTES AND COMMENTS

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### EVALUATION OF THE SPIDER *STEATODA TRIANGULOSA* (ARANEAE: THERIDIIDAE) AS A PREDATOR OF THE RED IMPORTED FIRE ANT (HYMENOPTERA: FORMICIDAE)

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Spiders have been shown to be important predators of ants (MacKay, 1982; Porter and Eastmond, 1982). Seventy-five percent of the prey of the black widow spider, *Latrodectus mactans* (F.), consists of the fire ant, *Solenopsis invicta* Buren, in cotton fields in Texas (Nyffeler et al., 1988). An additional 16 species of spiders prey on the fire ant (Nyffeler et al., 1988). The spider genus *Steatoda* is especially important, consisting of a group of specialized ant predators (Hölldobler, 1970; MacKay, 1982).

We are currently evaluating the impact of imported fire ants (*Solenopsis invicta*) on electrical equipment. We have shown an attraction of fire ants to such equipment (MacKay et al., unpubl.). Ants cause considerable damage in such equipment by shorting of circuitry and damaging electrical components (MacKay, 1989; Vinson and MacKay, 1989). A number of species of spiders occur in such equipment and are obviously predators of fire ants as ants occur in their webs. We have observed spiders killing fire ants on two occasions. *Steatoda triangulosa* (Keyserling) is the most common species; other species include *Scytodes* sp. (Scytodidae) and *Crossopriza stridulans* Millot (Pholcidae, introduced from Madagascar).

We visited traffic control signal cabinets in the cities of College Station and Bryan, Texas throughout 1987 and 1988 at monthly intervals. We estimated the numbers of ants in each of fifteen cabinets and counted the numbers of spiders in each cabinet. We tested the hypotheses that at lower densities of fire ants (50 or less/cabinet), the spider population density would be inversely correlated with the fire ant population density due to predation on the ants. At higher densities (over 50 ants/cabinet) the spider population would be positively correlated with the fire ant population due to immigration of spiders to these cabinets. Such movement of spiders to areas of higher ant density have been shown to occur (MacKay, 1982).

We found no correlation between spider and ant population densities either at low ant density (Pearson correlation coefficient: = -0.20,  $P = 0.16$ ,  $N = 36$  for Bryan; = -0.01,  $P = 0.94$ ,  $N = 62$  for College Station) or at higher densities (Pearson correlation coefficient = 0.16,  $P = 0.50$ ,  $N = 19$ , data lumped for both cities), indicating that neither population had any statistically significant effect on the other.

We conclude that spiders, especially *S. triangulosa* prey on fire ants in electrical equipment, although the effect of this predation is not statistically significant. Spiders were removed or disturbed each time a cabinet was checked, which may account to some extent for the lack of impact of spiders on ants. We suggest that whatever practice is employed to control ants in such equipment, the spider population should

be protected, as spiders do kill ants, and they do little or no harm to the equipment.—  
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